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2 **CLAIMS:**

3 1. A method facilitating protection of digital signals, the method  
4 comprising:

5 normalizing amplitude of a digital signal, wherein such signal is an  
6 original, unmarked signal;

7 transforming the normalized signal;

8 partitioning the normalized signal transform into segments;

9 for one or more segments:

10 • calculating statistics of a segment that are representative of that  
11 segment;

12 • quantizing such statistics of a segment;

13 generating a delta-sequence representing a combination of the quantized  
14 statistics of the one or more segments or an approximation of the combination;

15 marking the digital signal with the delta-sequence.  
16

17 2. A method as recited in claim 1, wherein the partitioning comprises  
18 pseudorandomly segmenting the normalized signal transform.  
19

20 3. A method as recited in claim 1, wherein the partitioning comprises  
21 pseudorandomly segmenting the normalized signal transform, wherein such  
22 segments are adjacent and non-contiguous.  
23  
24  
25

1           **4.**     A method as recited in claim 1, wherein the transforming comprises  
2 finding a low frequency subband.

3  
4           **5.**     A method as recited in claim 1, wherein the transforming comprises  
5 finding a significant frequency subband.

6  
7           **6.**     A method as recited in claim 1, wherein the statistics of the  
8 calculating comprises one or more finite order moments of a segment.

9  
10          **7.**     A method as recited in claim 1, wherein the generating comprises  
11 producing a pseudorandom delta-sequence that when combined with the digital  
12 signal approximate a combination of the digital signal and the quantized statistics  
13 of the one or more segments.

14  
15          **8.**     A method as recited in claim 1, wherein the marking comprises  
16 embedding a watermark via quantization index modulation (QIM).

17  
18          **9.**     A modulated signal generated in accordance with the acts recited in  
19 claim 1.

20  
21          **10.**    A computer-readable medium having computer-executable  
22 instructions that, when executed by a computer, performs the method as recited in  
23 claim 1.  
24  
25

1           **11.** A computer comprising one or more computer-readable media  
2 having computer-executable instructions that, when executed by the computer,  
3 perform the method as recited in claim 1.

4  
5           **12.** A method facilitating protection of digital signals, the method  
6 comprising:

7           normalizing amplitude of a subject digital signal;  
8           transforming the normalized signal;  
9           partitioning the normalized signal transform into segments;

10          for one or more segments:

- 11          • calculating statistics of a segment that are representative of that  
12           segment;
- 13          • quantizing such statistics of a segment to generated a quantized value of  
14           that segment;
- 15          • measuring the distance between such statistics of a segment and the  
16           quantized value of that segment;

17          determining whether a watermark is present in the digital signal based upon  
18 the quantized values of the one or more segments.

19  
20          **13.** A method as recited in claim 12, wherein measuring the distance  
21 comprising using perceptual distortion matrices.

22  
23          **14.** A method as recited in claim 12 further comprising:  
24          determining an indication of confidence based upon the measured distances  
25 of the measuring;

1 indicating an indication of confidence.

2  
3 **15.** A method as recited in claim 12 further comprising indicating  
4 whether a watermark is present.

5  
6 **16.** A method as recited in claim 12 further comprising indicating  
7 whether a watermark is present, wherein such indication is selected from a group  
8 consisting of “present,” “not present,” and “unknown.”

9  
10 **17.** A method as recited in claim 12, wherein the partitioning comprises  
11 pseudorandomly segmenting the normalized signal transform.

12  
13 **18.** A method as recited in claim 12, wherein the partitioning comprises  
14 pseudorandomly segmenting the normalized signal transform, wherein such  
15 segments are adjacent and non-contiguous.

16  
17 **19.** A method as recited in claim 12, wherein the transforming comprises  
18 finding a low frequency subband.

19  
20 **20.** A method as recited in claim 12, wherein the transforming comprises  
21 finding a significant frequency subband.

22  
23 **21.** A method as recited in claim 12, wherein the statistics of the  
24 calculating comprises one or more finite order moments of a segment.

1           **22.** A method as recited in claim 12, wherein the determining comprises  
2 detecting a watermark via quantization index modulation (QIM) techniques.

3  
4           **23.** A computer-readable medium having computer-executable  
5 instructions that, when executed by a computer, performs the method as recited in  
6 claim 12.

7  
8           **24.** A computer comprising one or more computer-readable media  
9 having computer-executable instructions that, when executed by the computer,  
10 perform the method as recited in claim 12.

11  
12           **25.** A method facilitating protection of digital signals, the method  
13 comprising:

14           partitioning a digital signal into segments;

15           for one or more segments:

- 16           • calculating statistics of a segment that are representative of that  
17           segment;  
18           • quantizing such statistics of a segment;

19           generating a marked signal approximately equivalent to a combination of  
20 the digital signal and the combination of the quantized statistics of the one or more  
21 segments.

22  
23           **26.** A method as recited in claim 25 further comprising normalizing  
24 amplitude of a digital signal, wherein such signal is an original, unmarked signal.  
25

1           **27.**   A method as recited in claim 25 further comprising transforming the  
2 signal.

3  
4           **28.**   A method as recited in claim 25, wherein the partitioning comprises  
5 pseudorandomly segmenting the signal.

6  
7           **29.**   A method as recited in claim 25, wherein the partitioning comprises  
8 pseudorandomly segmenting the signal, wherein such segments are adjacent and  
9 non-contiguous.

10  
11           **30.**   A method as recited in claim 25, wherein the statistics of the  
12 calculating comprises one or more finite order moments of a segment.

13  
14           **31.**   A method as recited in claim 25 further comprising determining a  
15 delta-sequence that is representative of the combination of the quantized statistics  
16 of the one or more segments.

17  
18           **32.**   A method as recited in claim 25 further comprising determining a  
19 pseudorandom delta-sequence that when combined with the digital signal  
20 approximate a combination of the digital signal and the quantized statistics of the  
21 one or more segments.

22  
23           **33.**   A method as recited in claim 25, wherein the generating comprises  
24 embedding a watermark via quantization index modulation (QIM).

1           **34.**   A modulated signal generated in accordance with the acts recited in  
2 claim 25.

3  
4           **35.**   A computer-readable medium having computer-executable  
5 instructions that, when executed by a computer, performs the method as recited in  
6 claim 25.

7  
8           **36.**   A computer comprising one or more computer-readable media  
9 having computer-executable instructions that, when executed by the computer,  
10 perform the method as recited in claim 25.

11  
12           **37.**   A method facilitating protection of digital signals, the method  
13 comprising:

14           partitioning a subject digital signal into segments;

15           for one or more segments:

- 16           • calculating statistics of a segment that are representative of that  
17           segment;  
18           • quantizing such statistics of a segment to generated a quantized  
19           value of that segment;

20           determining whether a watermark is present in the digital signal based upon  
21 the quantized values of the one or more segments.

22  
23           **38.**   A method as recited in claim 37 further comprising:

24           normalizing amplitude of the subject digital signal;

25           transforming the normalized signal.

1  
2       **39.**    A method as recited in claim 37 further comprising:  
3           for one or more segments, measuring the distance between such statistics of  
4           a segment and the quantized value of that segment;  
5           determining an indication of confidence based upon the measured distances  
6           of the measuring;  
7           indicating an indication of confidence.

8  
9       **40.**    A method as recited in claim 37 further comprising indicating  
10          whether a watermark is present.

11  
12       **41.**    A method as recited in claim 37 further comprising indicating  
13          whether a watermark is present, wherein such indication is selected from a group  
14          consisting of “present,” “not present,” and “unknown.”

15  
16       **42.**    A method as recited in claim 37, wherein the partitioning comprises  
17          pseudorandomly segmenting the signal.

18  
19       **43.**    A method as recited in claim 37, wherein the partitioning comprises  
20          pseudorandomly segmenting the signal, wherein such segments are adjacent and  
21          non-contiguous.

22  
23       **44.**    A method as recited in claim 37, wherein the statistics of the  
24          calculating comprises one or more finite order moments of a segment.

25



1           **45.**    A method as recited in claim 37, wherein the determining comprises  
2 detecting a watermark via quantization index modulation (QIM) techniques.

3  
4           **46.**    A computer-readable medium having computer-executable  
5 instructions that, when executed by a computer, performs the method as recited in  
6 claim 37.

7  
8           **47.**    A computer comprising one or more computer-readable media  
9 having computer-executable instructions that, when executed by the computer,  
10 perform the method as recited in claim 37.

11  
12           **48.**    A method for facilitating the protection of digital signals, the method  
13 comprising  
14           obtaining a digital signal;  
15           obtaining a watermark;  
16           using quantization index modulation (QIM), watermarking the signal with  
17 the watermark, wherein such QIM is based upon non-local characteristics of the  
18 signal.

19  
20           **49.**    A method as recited in claim 48, wherein the non-local  
21 characteristics are representative characteristics of more than a single element of a  
22 signal.

1           **50.** A method as recited in claim 48, wherein the non-local  
2 characteristics comprise statistics representative of one or more segments of the  
3 signal.

4  
5           **51.** A method as recited in claim 48, wherein the non-local  
6 characteristics comprise statistics representative of one or more pseudorandomly  
7 sized segments of the signal.

8  
9           **52.** A method as recited in claim 48, wherein the non-local  
10 characteristics comprise statistics representative of one or more pseudorandomly  
11 dimensioned segments of the signal.

12  
13           **53.** A method as recited in claim 48, wherein the non-local  
14 characteristics comprise statistics representative of one or more pseudorandomly  
15 dimensioned segments of the signal, wherein such segments are adjacent and non-  
16 contiguous.

1           **54.**   A modulated signal generated in accordance with the acts recited in  
2 claim 48.

3  
4           **55.**   A modulated signal generated in accordance with the following acts:  
5 providing a server computer in a communications with a communications  
6 network;

7 receiving input from a client computer by way of the communications  
8 network, the input providing a parameter indicative of a request for a modulated  
9 signal generated in accordance with the acts recited in claim 48;

10 generating the modulated signal in accordance with the acts recited in claim  
11 48;

12 sending the modulated signal via the communications network.

13  
14           **56.**   A computer-readable medium having computer-executable  
15 instructions that, when executed by a computer, performs the method as recited in  
16 claim 48.

17  
18           **57.**   A computer comprising one or more computer-readable media  
19 having computer-executable instructions that, when executed by the computer,  
20 perform the method as recited in claim 48.

1           **58.**    A method for facilitating the protection of digital signals, the method  
2 comprising  
3           obtaining a digital signal;  
4           using quantization index modulation (QIM), detecting whether the signal  
5 includes a watermark, wherein such QIM is based upon non-local characteristics  
6 of the signal.

7  
8           **59.**    A method as recited in claim 58, wherein the non-local  
9 characteristics are representative characteristics of more than a single element of a  
10 signal.

11  
12           **60.**    A method as recited in claim 58, wherein the non-local  
13 characteristics comprise statistics representative of one or more segments of the  
14 signal.

15  
16           **61.**    A method as recited in claim 58, wherein the non-local  
17 characteristics comprise statistics representative of one or more pseudorandomly  
18 sized segments of the signal.

19  
20           **62.**    A method as recited in claim 58, wherein the non-local  
21 characteristics comprise statistics representative of one or more pseudorandomly  
22 dimensioned segments of the signal.

1           **63.** A method as recited in claim 58, wherein the non-local  
2 characteristics comprise statistics representative of one or more pseudorandomly  
3 dimensioned segments of the signal, wherein such segments are adjacent and non-  
4 contiguous.

5  
6           **64.** A computer-readable medium having computer-executable  
7 instructions that, when executed by a computer, performs the method as recited in  
8 claim 58.

9  
10           **65.** A computer comprising one or more computer-readable media  
11 having computer-executable instructions that, when executed by the computer,  
12 perform the method as recited in claim 58.

13  
14           **66.** A system for facilitating the protection of digital signals, the system  
15 comprising:

16           a partitioner configured to segment a digital signal;

17           a segment-statistics calculator configured to calculate statistics of a segment  
18 that are representative of that segment;

19           a segment quantizer configured to quantize such statistics of a segment

20           a signal marker configured to generate a marked signal approximately  
21 equivalent to a combination of the digital signal and the combination of the  
22 quantized statistics of the one or more segments.

